REMARKS

The present Response After Final Pursuant to 37CFR 1.116 is submitted in reply to the Final Office Action dated January 9, 2006 and thereby within two (2) months of the mailing date of this Final Office Action. The Applicant respectfully requests entry of the following before reconsideration of this application.

Claims 17-24 are presently pending in this Application and the Examiner rejects claims 19 and 20 under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case. The Applicant respectfully requests that the Examiner reconsider and withdraw all of the rejections of claims under 35 U.S.C. § 112.

The Examiner also rejects claims 17-24, under 35 U.S.C. § 103(a), as being unpatentable over Evans et al. `520 in view of Nakagami et al. `248. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

The present invention, as recited in the pending claims, is directed to a drive train and a method for controlling a drive train of a vehicle system in which an engine drives a hydrodynamic torque converter that, in turn, drives a transmission driving a vehicle propulsion system and, when a working hydraulic system selector lever is engaged, an auxiliary drive which drives a working hydraulic system--such as a hydraulic scoop positioning system. When the selector lever is not engaged, so that the hydraulic torque converter output flows only to the vehicle propulsion system, the control system controls the torque converter so that the

vehicle speed is determined by the position of a driving pedal. When the selector lever is engaged, however, the torque converter output is divided and supplied to both the propulsion system and the auxiliary hydraulic system, driving the hydraulic working system, so that the driving speed of the propulsion system and the speed of the auxiliary drive driving, and thereby the speed of the vehicle and operation of the working hydraulic system, are determined by the position of the driving pedal.

If the selector lever is engaged, however, and if the engine output is at its maximum output, the control system divides the torque converter output between the auxiliary drive and the propulsion system so as to supply the required power to the auxiliary drive and the working hydraulic system and reduces, as necessary, the power supplied to the propulsion system so as to control the speed of the vehicle to a desired speed dictated by the pedal position.

Stated briefly, therefore, the drive train and method for controlling a drive train of a vehicle according to the present invention divides or separates the power output from the torque converter between the auxiliary drive, driving the hydraulic working system, and the propulsion system, driving the vehicle, so as to maintain at least the minimum required power to the hydraulic system and accordingly reduces the power supplied to the propulsion system, as necessary, to maintain the required level of power to the working hydraulic system while still permitting travel of the vehicle.

Now considering the recitations of claim 17 in further detail, and referring to the corresponding recitations in independent claims 18 and 24, claim 17 recites a drive train for a mobile vehicle wherein the drive train includes a hydrodynamic torque converter (4) connected with a drive engine (1) for driving both a transmission (5) for driving a propulsion drive and an auxiliary drive (6) for driving a hydraulic pump (7) of a working hydraulic system. The drive train also includes an electronic control unit (10) receiving a signal from a selector lever (8) and a signal from a driving pedal wherein the electronic control unit (10) controls the drive engine (1)

and the clutch (2) to establish a driving speed of the propulsion drive and a speed of the auxiliary drive (6) dependent upon positions of the driving pedal (11) and the selector lever (8).

As also recited in the claims, when the clutch (2) is engaged and the selector lever (8) is actuated and the drive engine (1) is operating at maximum power, the control unit will actuate the clutch (2) in a disengaging direction and will regulate the drive engine (1) so that the auxiliary drive (6) reaches a defined speed and a driving speed of the propulsion drive is reduced as the driving resistance increases.

Now considering the teachings of the base reference of Evans '520, this reference relates to a drive train including an engine 104 driving a shaft 105 being connected to the transmission 114 via one or more of the hydraulic torque converter 106 or a lockup clutch 118. The drive from the engine 104 through the hydraulic torque converter 106 to the transmission 114 is controlled by an impeller clutch 116. The impeller clutch 116 and the lock up clutch 118 are each respectively controlled by valves 120 and 122, which are each controlled by an electronic control 126. The lockup clutch 118 is engaged for direct drive between the engine 104 and the transmission 114, so that the full output power of the engine 104 is provided to the transmission 114. Otherwise, the impeller clutch 116 is engaged, under the control of electronic control 126, to provide selectively variable power from the engine 102 to the transmission 114.

According to Evans '520, the electronic control 126 controls the degree of engagement of the impeller clutch 116 by controlling the impeller clutch pressure and the brake pressure so that the ground speed of the machine, and only the ground speed of the machine, is proportional to the angle of depression of the impeller pedal, as described in column 3, line 50 to column 4, line 5.

It is, therefore, apparent that there are number of fundamental distinctions between the present invention, as recited in independent claims 17, 18 and 24, and the teachings of

Evans `520. For example, the drive train taught by Evans `520 operates only to provide power to move only the machine to travel over a surface. The Evans `520 drive train does not include any form of auxiliary dive and, more specifically, does not include any form of auxiliary drive for driving any form of working hydraulic system. In fact, Evans `520 does not even mention or suggest any form of an auxiliary drive for driving any type of working hydraulic system.

As a result, the drive train taught by Evans `520 does not and cannot apportion the engine power output between a drive transmission, for moving the vehicle over a surface, and any type of an auxiliary drive for controlling operation of any form of a working hydraulic system.

In addition, and as a further consequence of the above distinctions, Evans `520 does not and cannot teach or suggest any form of system for apportioning power between a drive transmission for moving the vehicle over a surface and any form of an auxiliary drive for driving a working hydraulic system in such a manner as to ensure at least a minimum required power to the working hydraulic system and reducing the power to the transmission, as necessary, to maintain the supply of adequate of driving power for the vehicle.

In this regard, it must be noted that the entire function of the Evans `520 system is to maintain power to the transmission so that the vehicle moves over a surface at a speed determined by the pedal position. If Evans `520 has any suggestions in this regard, Evans `520 teaches directly away from the present system where the first priority, when the engine is at a maximum output, is to direct or channel the engine output power to the working hydraulic system to ensure adequate operation thereof while the transmission for driving the travel direction of the vehicle receives secondary priority and receives the remaining power left over after the working hydraulic system receives its required power. If too much power is supplied to the transmission, the clutch is allowed to slip.

It is, therefore, the belief and position of the Applicant that the present invention, as recited in independent claims 17, 18 and 24, is fully and patentably distinguished over and

from the teachings and suggestions of Evans `520 under the requirements and provisions of 35 U.S.C. § 103. It is also noted that the Examiner implicitly agrees with the patentable distinctions of the present invention over Evans `520 in that the Examiner withdrew the previous rejection of the claims over Evans `520 alone in favor of the newly raised rejection of the claims in view of Evans `520 in combination with Nakagami et al. '248. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the rejection of the claims over Evans `520 under 35 U.S.C. § 103.

Turning now to the teachings of Nakagami et al. `248, this reference describes a slip control system for bulldozer that includes a running slip detector using any of a number of means to detect slip of the drive tracks, that is, the condition wherein the bulldozer is not moving over the ground at the speed indicated by the engine and transmission *due to slippage between the tracks and the ground*. The methods for detecting slip can include, for example, detecting acceleration of the bulldozer body, detecting a change in the pitch of the bulldozer body relative to the ground, detecting a difference between the power delivered to the tracks and the motion of the tracks, and so on. According to Nakagami et al. `248, upon detecting track slip, the system will generate a command to the blade control hydraulics to *lift* the blade, thereby reducing the force acting on the blade due to the blade engaging the ground, until the slippage disappears, so that the resisting force generated on the blade by the ground is no greater than the traction force that can be exerted by the tracks on the ground.

It is, therefore, apparent that there are a number of fundamental distinctions between the present invention, as recited in independent claims 17, 18 and 24, and the teachings of Nakagami et al. `248. For example, although it is implicit that there is some form of auxiliary power unit in the Nakagami et al. `248 bulldozer for providing hydraulic power to the blade, there is no indication that such an auxiliary blade hydraulic power unit is associated with or

draws power from the same source, i.e., a hydrodynamic torque converter coupling the drive engine (1) to the shiftable step-down transmission (5), as the track drive system.

Likewise, Nakagami et al. '248 does not teach or even suggest any function of a control system for apportioning power between the tracks and the blade control hydraulics, but essentially assumes that the power to the tracks and the power to be blade hydraulics are functionally separate. In this regard, it must be noted that the Nakagami et al. '248 control system merely commands the blade hydraulics to *raise* the blade and there is no teaching or suggestion in Nakagami et al. '248 of the control system apportioning the power between the blade hydraulics and the track drive system.

It must also be noted that the teachings and suggestions of Nakagami et al. '248 are directly contrary to the present invention. That is, the system and method of the present invention *apportions* power between the vehicle drive transmission and the auxiliary drive to the working hydraulic system *to maintain a desired level of power to the working hydraulic system* and accordingly reduces the power to the vehicle drive transmission, as necessary, to maintain the required level of power to the working hydraulic system while still permitting travel of the vehicle.

Stated another way, the system of the present invention reduces power to the drive train to maintain power to support a desired load on the vehicle, that is, on the working hydraulic system. That is, the system of the present invention reduces the travel motion of the vehicle to maintain the load bearing capacity of the vehicle in terms of the load born by the working hydraulic system. In direct contrast, and recognizing that the Nakagami et al. '248 system does not *apportion* power between the track drive and the blade hydraulics, the Nakagami et al. '24 system merely reduces the load on the vehicle, by raising the blade to reduce the traction resisting force exerted by the blade of the vehicle on the ground in an attempt to reestablish motion of the bulldozer without any slippage. As such, it is very clear that the teachings of

Nakagami et al. `248 and the resultant operation of the Nakagami et al. `248 system are the direct opposite of the presently claimed invention.

It is, therefore, the belief and position of the Applicant that Nakagami et al. `248 does not teach or suggest the present invention, as recited in independent claims 17, 18 and 24, to those of skill in the relevant arts under the requirements and provisions and requirement of 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejection of the claims under 35 U.S.C. § 103 over Nakagami et al. `248.

Turning now to the combination of Evans et al. `520 and Nakagami et al. `248, it is shown above that the Evans `520 drive train does not include any form of auxiliary drive or any form of auxiliary drive for driving any form of a working hydraulic system, and thus does not and cannot teach or suggest any mechanism or means for apportioning engine power output between a drive transmission for moving the vehicle over a surface and any form of an auxiliary drive for any form of a working hydraulic system. The entire significant teaching found in Evans `520 system is that the power to the vehicle drive transmission should be controlled by a pedal position so that the vehicle travels over a surface ground at a speed determined by the pedal position.

Likewise, Nakagami et al. `248 does not teach or even suggest a control system for apportioning power between the tracks and the blade control hydraulics, but essentially assumes that the power to the tracks and the power to be blade hydraulics are functionally separate and independent of one another. Nakagami et al. `248 merely commands the blade hydraulics to raise the blade under certain conditions where the tracks slip.

Furthermore, the teachings and suggestions of Nakagami et al. `248 are directly contrary to the present invention. That is, the system and method of the present invention *apportions* power between the vehicle drive transmission and the auxiliary drive to the working hydraulic system to maintain a necessary supply of power to the working hydraulic system while

reducing, as necessary, the power to the vehicle drive transmission, that is, the speed of the vehicle, to maintain the required level of power to the working hydraulic system, that is, to maintain the load on the vehicle while still permitting travel of the vehicle. In complete contrast, the Nakagami et al. `248 system not only does not apportion power between the track drive and the blade hydraulics, but merely reduces the load on the vehicle by raising the blade –not reapportioning power–in an attempt to maintain the desired motion of the bulldozer without slip. As such, it is very clear that the teachings of Nakagami et al. `248 and the resultant operation of the Nakagami et al. `248 system are the direct opposite to those of the present invention.

With regard to the alleged combination of Evans et al. `520 in view of Nakagami et al. `248, the result combination would be a bulldozer or similar vehicle wherein the speed of the vehicle would be determined by the position of a pedal and the system would detect track slippage and would reduce the resisting load on the vehicle, by raising the bulldozer blade or reducing the load of the auxiliary drive, as necessary, to allow the vehicle to move at the speed indicated by the pedal position.

It is, therefore, apparent that the combination of Evans et al. `520 in view of Nakagami et al. `248 does not teach or suggest the present invention, as recited in independent claims 17, 18 and 24, under the requirements and provisions of 35 U.S.C. § 103. In particular, the applied combination fails to in any way teach, suggest or disclose a vehicle drive train that divides the power output of a torque converter between an auxiliary drive, driving a hydraulic working system, and a propulsion system, driving the vehicle, so as to maintain at least the minimum required power to the hydraulic system and reduce the power to the propulsion system and the vehicle speed, as necessary. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejections of claims 17, 18 and 24, under

35 U.S.C. § 103, in view of Evans et al. '520 and Nakagami et al. '248, and allow claims 17, 18 and 24.

In addition, claims 19-23 all depend from claim 18 and thereby incorporate all of the limitations of claim 18 by dependence and, for this reason as well as the respective claim limitations, are thereby fully and patentably distinguished over and from Evans et al. '520 and/or Nakagami et al. '248 under the requirements and provisions of 35 U.S.C. §§102 or 103. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the raised rejection of claims 19-23 and allow claims 19-23.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Even et al. '520 and/or Nakagami et al. '248 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

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